

Work Order ID 63236

Tuesday, October 26, 2010 8:37:40 AM

Page 1

Item ID: D412-664-209TRN

Accept

Revision ID:

Item Name: Crosstube Turning Detail

Start Date: 10/26/2010 Start Qty: 1.00

Required Date: 10/29/2010 Req'd Qty: 1.00

Reference:

Approvals: Process Plan: *M*Date: *10-10-26* Tooling:

Date:

QC:

Date: SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

D412-664-249

Rev B

100

0.00



Mori Seiki

MORI SEIKI CNC LATHE LARGE

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA708
2-Turn first side as per Folio FA708
3- File transition lines smooth.

SL 10/11/04

110

0.00



QC

QC1- Inspect dimensions to dimension sheet

Memo

0.00

Quality Control

*SL**10/11/04*

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Reference:

Cust Item ID:

Customer:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start
Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120  Mori Seiki	MORI SEIKI CNC LATHE LARGE	0.00							
Mori Seiki CNC Lathe Large	Memo 1-Turn second side as per Folio FA708 2- File transition lines smooth. 3- Remove sand and plugs 4-Scribe part # and batch # using vibrating stylus as per Dwg D412-664-249 Inside of Cuff(Donot engrave on outside of tube)	0.00		SL		1	0		
130  QC	QC1- Inspect dimensions to dimension sheet	0.00		SL		1	0		
Quality Control	Memo	0.00							
140  QC	QC8- Inspect parts - second check	0.00							
Quality Control	Memo	0.00				70			

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Customer:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

150

Crosstubes Chemical Conversion

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

SAD
10-11-10

①

160

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

1 0 BE10/11/10

170

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and stock in kanban rack
Location: LG

SAD 10-11-10

①

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Page 4

Item ID: D412-664-209TRN

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Turning Detail

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Required Date: 10/29/2010 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

180

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

CK 10/11/11

MA

10-11-11

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Picklist Print

Tuesday, October 26, 2010 8:37:44 AM

Page 1

Work Order ID: 63236



Parent Item: D412-664-209TRN



Parent Item Name: Crosstube Turning Detail

Start Date: 10/26/2010

Required Date: 10/29/2010

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A New Issue 08-03-06 DD verified by:ec
IPP Rev B 08.04.02 Removed polish EC verified by: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D6009-129

Manufactured

No

110

Each

16.0000

1

1



Crosstube Material

SL 10/11/10

Location

Loc Qty

Loc Code

LG

16

38342

2

53594

14

1

W/O:		WORK ORDER CHANGES					
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NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order: 63236
Description: Crosstube Assembly (412 Low Aft)		Part Number: D412-664-249
Inspection Dwg: D412-664-249 Rev: <i>AB</i>		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.625	+/-0.010	.630	—		Vern	ML-7
	2.680	+0.005/-0.000	2.684	—		"	"
	2.680	+0.005/-0.000	2.684	—		"	"
	2.687	+0.005/-0.000	2.691	—		"	"
	2.793	+0.005/-0.000	2.798	—		"	"
	2.930	+0.005/-0.000	2.935	—		"	"
	3.067	+0.005/-0.000	3.071	✓		Micro	CNC-05
	3.205	+0.005/-0.000	3.205	✓		"	"
	3.358	+0.005/-0.000	3.361	✓		"	"
	3.378	+0.005/-0.000	3.382	✓		"	"
	3.500	+0.005/-0.000	3.500	✓		"	"
SIDE B	0.625	+/-0.010	.632	—		Vern	ML-7
	2.680	+0.005/-0.000	2.685	—		"	"
	2.680	+0.005/-0.000	2.685	—		"	"
	2.687	+0.005/-0.000	2.692	—		"	"
	2.793	+0.005/-0.000	2.798	—		"	"
	2.930	+0.005/-0.000	2.935	—		"	"
	3.067	+0.005/-0.000	3.072	—		Micro	CNC-05
	3.205	+0.005/-0.000	3.205	—		"	"
	3.358	+0.005/-0.000	3.362	—		"	"
	3.378	+0.005/-0.000	3.382	—		"	"
	3.500	+0.005/-0.000	3.500	—		"	"
	0.127.82	+/-0.020	127.840	—		M-tape	ML-2

Measured by: <i>Amk</i>	Audited by: <i>S</i>	Prototype Approval:	N/A
Date: 10/11/09	Date: 10/11/09	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	08.11.07	New Issue (P/O D212-664-209)	KJ/EC <i>AS</i>	<i>DS</i>

W/O:		WORK ORDER CHANGES					
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NOTE: Date & initial all entries

Item	Qty	Part Number	Description
1	X	D412-664-249	CROSSTUBE ASSEMBLY (412 LOW AFT)
2	1	D6009-129	CROSSTUBE
3	2	D2856-600-1009	ABRASION STRIP
4	1	D2896-1	SUPPORT
5	2	D3189-1	CHAFING SHIELD
6	2	D3595-063-570	RUBBER CUSHION
7	2	D3660-1	CUFF
8	44	CR3212-4-07	RIVET (OR M7885/3-4-07)
9	4	MS21920-28	CLAMP
10	2	MS21920-30	CLAMP (OR MS21920-32)
11	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
12	A/R	SIKAFLEX-241/-291	SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6009-129
FINISHED LENGTH = 127.826±0.020 (BEFORE BENDING/TRIMMING)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D412-664-249" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 42.5 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) WHEN MACHINING TAPER, RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D., EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2896-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2896-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-30 CLAMPS (OR -32) WITH D3595-063-570 RUBBER CUSHIONS TO SECURE THE D2896-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) INSTALL D2856-600-1009 ABRASION STRIPS WITH A 0.13 REF GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI 035.
- 15) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 16) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
- 17) INSTALL D3660-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT, WITH A LAYER OF SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN CUFF AND CROSSTUBE. SEAL EDGE OF CUFF TO ENSURE NO GAPS.
- 18) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 63236
BK10-10-26

RELEASED
2009-10-28
WJ

B	REVISE GENERAL NOTES; UPDATE TO CURRENT STANDARDS	RF	09.09.30
A	NEW ISSUE	CP	07.07.07
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>90</i>	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>90</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>10</i>	D412-664-249	SHEET 1 OF 4
APPROVED	<i>10</i>	TITLE	SCALE
DE APPR.	<i>10</i>	CROSSTUBE (412 LOW AFT)	NTS
DATE	09.09.30	COPYRIGHT © 2007 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

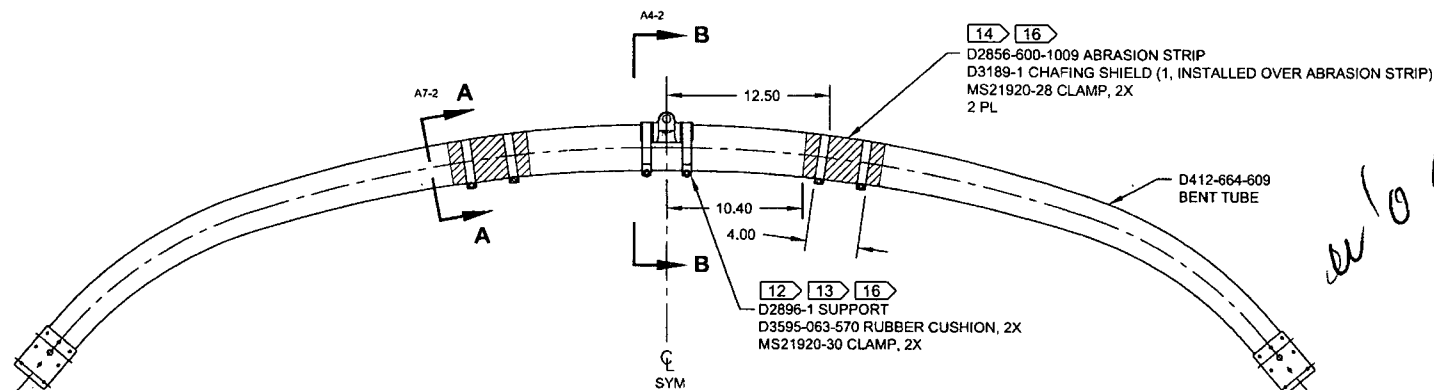
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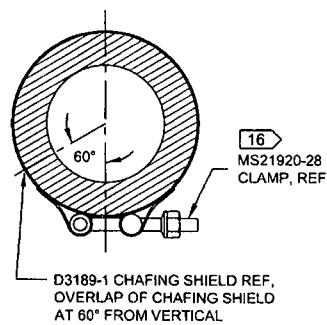
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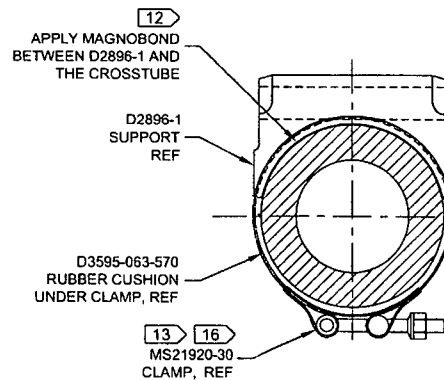
NOTE: Date & initial all entries



D412-664-249
ASSEMBLY DETAIL



SECTION A-A D6-2
SCALE 4X



SECTION B-B D5-2
SCALE 4X

RELEASED
2009-10-29

DESIGN	Q	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	Q	DRAWING NO.	REV. B
MFG. APPR.	D	D412-664-249	SHEET 2 OF 4
APPROVED	RF	TITLE	SCALE
DE APPR.	#	CROSSTUBE (412 LOW AFT)	NTS
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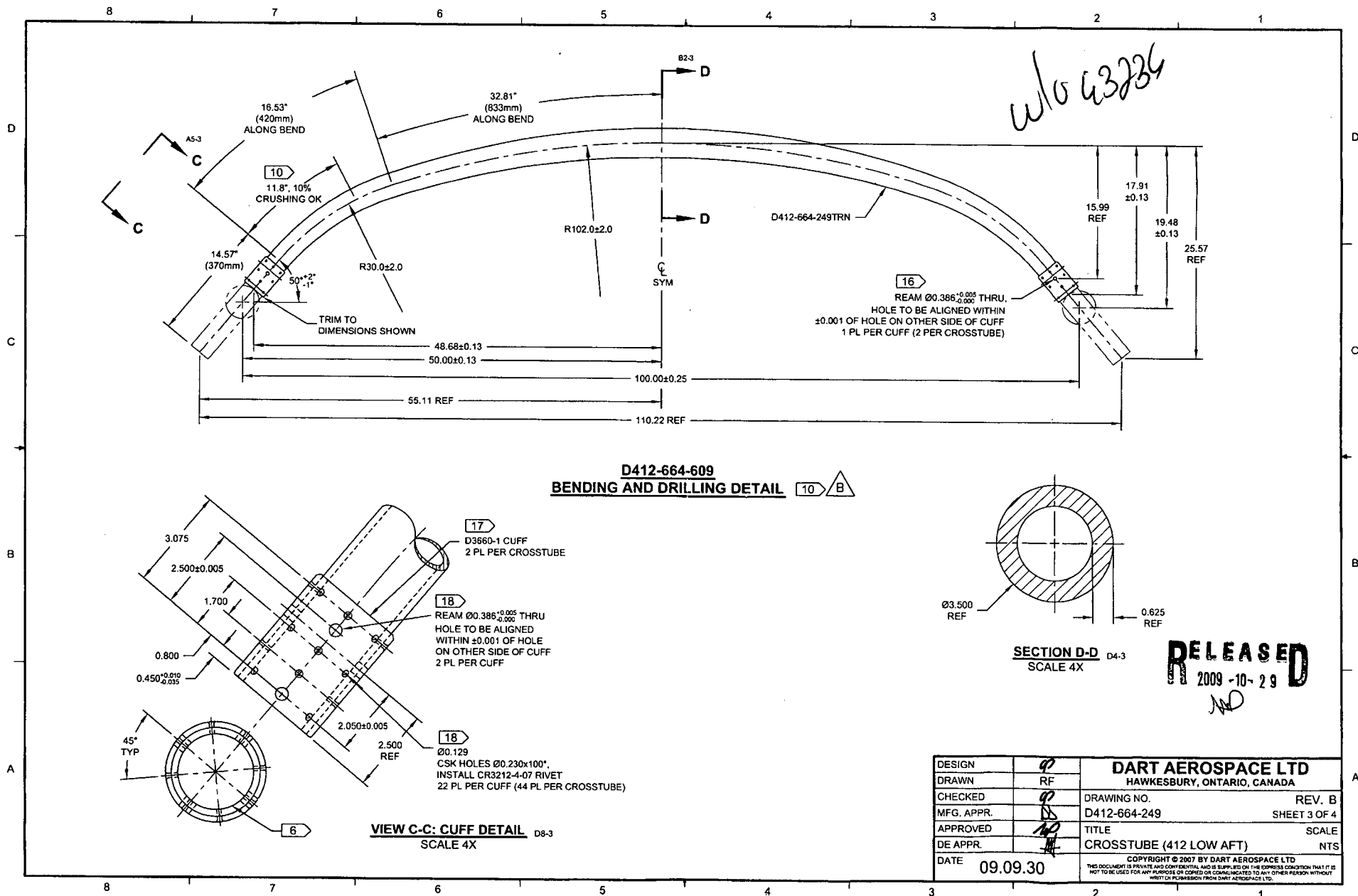
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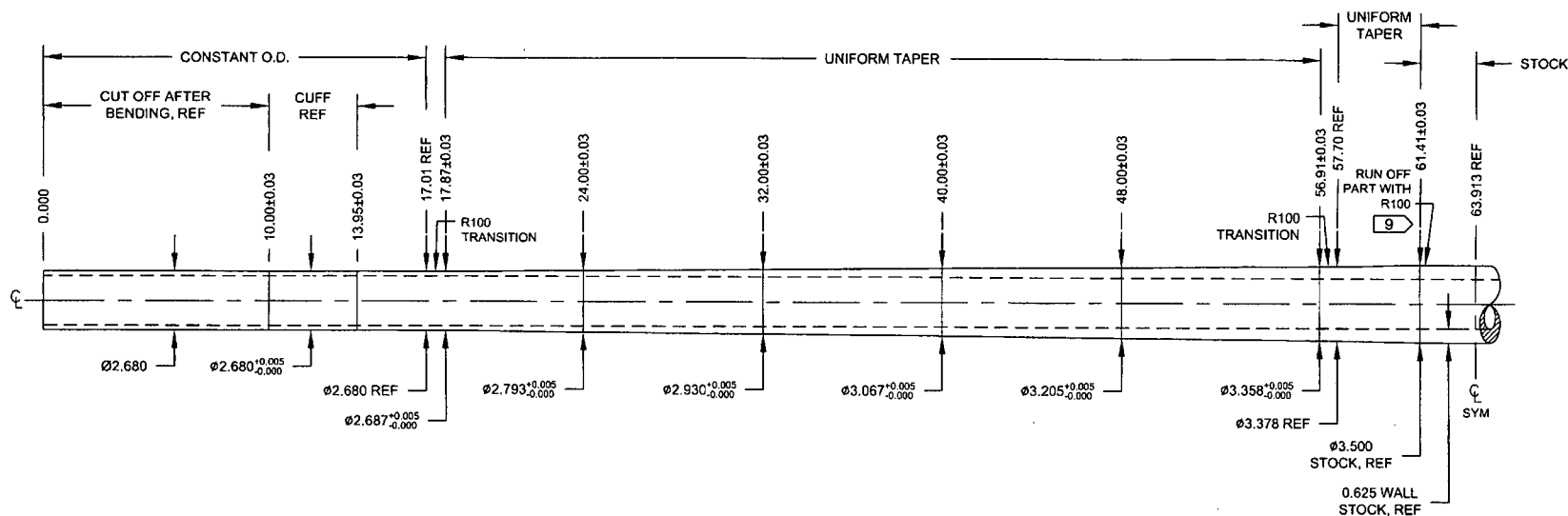
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8 7 6 5 4 3 2 1

w/043236



D412-664-249TRN
TURNING DETAIL

RELEASED
2009-10-29
MD

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DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	Q	DRAWING NO.	REV. B
MFG. APPR.	Q	D412-664-249	SHEET 4 OF 4
APPROVED	Q	TITLE	SCALE
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8 7 6 5 4 3 2 1

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